

We Claim:

1. A method for controlling the heating of a swimming pool having a heater with a control mechanism, comprising the steps of :

5 establishing and recording a minimum temperature, a maximum wind speed, pool water temperature and a plurality of times and dates in the future that will permit use of said pool;

checking the forecast weather for a first future time period and comparing the forecast air temperature and wind speed against said air temperature and wind speed from said establishing step for said time period to determine if they will not permit use of said pool for any of said times and dates established in said establishing step within said first future time period and recording the first said unpermitted time and date;

determining the next time and date in said first future time period that is after said first unpermitted time and date recorded in said checking step that will permit use of said pool by comparing the forecast air temperature and wind speed for the remainder of said first future time period to said air temperature and wind speed from said establishing step and recording any said next time and date;

calculating the time required for said heater to heat the pool water to said temperature from said establishing step prior to said next time and date that will permit use of said pool from said determining step and predicting the temperature of the water in the pool for all times between the current time and date and said next time and date that will permit use of said pool from said determining step utilizing the forecast weather for this time period;

measuring the temperature of the pool water;

periodically comparing the measured pool water temperature from said measuring step and said predicted pool water temperature from said calculating step for the same time;

overriding the heater control mechanism and causing the heater to be turned off if
5 said checking step records a first unpermitted time and date and said measured pool water temperature is greater than said predicted pool water temperature and thereafter causing said heater to be turned on if said measured pool water temperature is not greater than said predicted pool water temperature; and

returning control to said heater control mechanism at said next time and date that
10 will permit use of said pool from said determining step.

2. The method of claim 1 further comprising the step of recording and correlating the measured pool water temperature from said measuring step and comparing it to the predicted pool water temperature from said calculating step whenever the overriding step causes said heater to be turned on.

15 3. The method of claim 1 wherein said step of returning control further comprises repeating said checking, determining, calculating, measuring, periodically comparing and overriding steps for future time periods.

4. The method of claim 3 further comprising the step of recording and correlating the measured pool water temperature from said measuring step and comparing it to the
20 predicted pool water temperature from said calculating step whenever the overriding step causes said heater to be turned on.

5. The method of claim 4 wherein said calculating step takes into account any differences between the measured pool water temperature during the time that said heater

is turned on in said overriding step to the predicted pool water temperature and adjust the time required for the said heater to heat the pool accordingly upon encountering the same forecast weather conditions in the future.

6. The method of claim 5 wherein said establishing step also establishes a maximum
5 rainfall that will permit use of said pool and said checking and determining steps to compare said maximum rainfall to the forecast rainfall to determine whether use of said pool will be permitted for any of said times and dates established in said establishing step.

7. The method of claim 1 wherein said calculating step takes into account at least
10 one of the following:

solar energy, wind direction, shade and dewpoint.

8. The method of claim 1 wherein said calculating step takes into account solar energy, wind direction, shade and dewpoint.

9. The method of claim 1 wherein the forecast weather in said checking step is
15 periodically updated.

10. The method of claim 9 wherein said calculating step and said periodically comparing step are performed again any time said periodic update of said forecast weather indicates a change in the forecast weather.

11. The method of claim 1 wherein said step of overriding the heater control
20 mechanism further requires there to be a minimum preselected amount of time between said first unpermitted time and date and said next time and date that will permit use.

12. An apparatus for controlling the heating of a swimming pool comprising;
a heater with a control mechanism;

means for recording a minimum temperature, a maximum wind speed, pool water temperature and a plurality of times and dates in the future that will permit use of said pool;

means for checking the forecast weather for a first future time period and
5 comparing the forecast air temperature and wind speed against said air temperature and wind speed from said recording;

means for said time period to determine if they will not permit use of said pool for any of said times and dates recorded by said recording means within said first future time period and recording the first said unpermitted time and date;

10 means for determining the next time and date in said first future time period that is after said first unpermitted time and date recorded by said checking means that will permit use of said pool by comparing the forecast air temperature and wind speed for the remainder of said first future time period to said air temperature and wind speed from said recording means and recording any said next time and date;

15 means for calculating the time required for said heater to heat the pool water to said temperature in said recording means prior to said next time and date that will permit use of said pool from said determining means and predicting the temperature of the water in the pool for all times between the current time and date and said next time and date that will permit use of said pool from said recording means utilizing the forecast weather
20 for this time period;

means for measuring the temperature of the pool water;

means for periodically comparing the measured pool water temperature from said measuring means and said predicted pool water temperature from said calculating means for the same time;

means for overriding the heater control mechanism and causing the heater to be
5 turned off if said checking means records a first unpermitted time and date and said measured pool water temperature is greater than said predicted pool water temperature and thereafter causing said heater to be turned on if said measured pool water temperature is not greater than said predicted pool water temperature; and

means for returning control to said heater control mechanism at said next time and
10 date that will permit use of said pool from said determining means.

15

20

25